We claim:

1. A multi protocol transponder for a communications network operative according to a communications protocol from a plurality of communications protocols under which the transponder is operative, the transponder comprising:

means for receiving a first RF signal transmitted according to the communications protocol;

means for sequentially identifying the communications protocol from the first RF signal;

means for executing the identified communications protocol to generate a second RF signal; and

means for transmitting the second RF signal according to the identified communications protocol.

2. The transponder of claim 1 wherein the means for transmitting the second RF signal according to the communications protocol comprises:

a transmit antenna;

backscatter means for transforming the second RF signal to radiated energy by modulated backscatter; and

active transmission means for transforming the second RF signal to radiated energy by active transmission,

the means for executing the identified communications protocol having means for selecting either the backscatter means or active transmission means for operation in response to the identified communications protocol.

3. The transponder of claim 2 wherein the means for receiving comprises a receive antenna, the transmit antenna and receive antenna being one in the same, and wherein the transponder further includes a switch to disable the means for receiving during operation of the means for transmitting.

4. The transponder of claim 1 wherein each of the plurality of communications protocols includes a threshold trigger level of radiated energy to activate each of the protocols and wherein the means for sequentially identifying comprising:

means for detecting the level of radiated energy of the first RF signal.

5. The transponder of claim 4 wherein the means for identifying further includes:

means for testing the first RF signal for communications protocol indicators for each of the protocols triggered by the radiated energy detected.

6. The transponder of claim 5 wherein the means for testing comprises:

means for demodulating and converting the first RF signal to a digital signal; and

means for decoding the digital signal to identify communications protocol indicators.

7. The transponder of claim 1 wherein the plurality of communications protocols comprises at least one communications protocol selected from the group of protocols comprising public Title 21 protocol, public TDMA Wide Area protocol, public TDMA Lane Based protocol , and proprietary IAG protocol.

8. The transponder of claim 7 wherein the communications protocol indicators comprise:

for the public Title 21 protocol, the presence of valid Manchester Data and an encoded Title 21 interrogation message;

for either of the public TDMA protocols, the presence of valid Manchester Data and an appropriate Frame Control Message; and

for the proprietary IAG protocol, the presence of an IAG trigger condition detected twice in succession in the span of 40 mSecs or less and in

the absence of an intervening Title 21 interrogation message.

9. The transponder of claim 8 wherein the threshold level comprises:
for the public TDMA Wide Area protocol, about -30dBm;
for the public TDMA Lane Based protocol, about -22dBm;
for the public Title 21 protocol, about -22dBm; and
for the proprietary IAG protocol, about -10dBm.

10. The transponder of claim 1 further comprising means for storing digital data in a memory accessible to the means for executing the identified communications protocol, wherein the second RF signal being based at least in part on the data.

11. The transponder of claim 10 wherein the data comprises a protocol dependent identity respectively associated with each of the plurality of communications protocols.

12. The transponder of claim 10 wherein the data comprises a single unique universal identification code identifying the transponder independently of the plurality of communications protocols.

13. The transponder of claim 11 wherein the data comprises a single unique universal identification code identifying the transponder independently of the plurality of communications protocols.

14. The transponder of claim 1 wherein the first RF signal comprises a set of RF signals.

15. A method for operating a multi protocol transponder in a communications network for reader-transponder communications operating

according to a communications protocol from a plurality of communications protocols under which the transponder is operable, the method comprising the steps of:

receiving and transforming radiated energy to a first RF signal;

identifying the communications protocol sequentially from the first RF signal;

executing the identified communications protocol to generate a second RF signal;

transmitting the second RF signal according to the identified communications protocol.

16. The method of claim 15 wherein the step of transmitting the second RF signal comprises:

selectively, in response to the identified communications protocol:

transforming the second RF signal to radiated energy by modulated backscatter; or

transforming the second RF signal to radiated energy by active transmission.

17. The method of claim 16 further comprising the step of disabling the means for receiving during operation of the means for transmitting.

18. The method of claim 15 wherein each of the plurality of communications protocols includes a threshold trigger level of radiated energy to activate the protocols and wherein the step of identifying the communications protocol comprises the steps of:

detecting the level of radiated energy of the first RF signal;

if the level of radiated energy detected exceeds the threshold trigger level for a communications protocol, testing the first RF signal for

communications protocol indicators for each protocol triggered by the radiated energy detected.

19. The method of claim 18 wherein the step of testing comprises the steps of:

demodulating and converting the first RF signal to a digital signal; and

decoding the digital signal to identify communications protocol indicators.

20. The method of claim 19 wherein the plurality of communications protocols comprises at least one communications protocol selected from the group of protocols comprising public Title 21 protocol, public TDMA Wide Area protocol, public TDMA Lane Based protocol, and proprietary IAG protocol.

21. The method of claim 20 wherein the communications protocol indicators comprise:

for the public Title 21 protocol, the presence of valid Manchester Data and an encoded Title 21 interrogation message; and

for either of the public TDMA protocols, the presence of valid Manchester Data and an appropriate Frame Control Message;

for the proprietary IAG protocol, the presence of an IAG trigger condition detected twice in succession in the span of 40 mSecs or less and in the absence of an intervening Title 21 interrogation message.

22. The method of claim 21 wherein the threshold level comprises:

for the public TDMA Wide Area protocol, about -30dBm;

for the public TDMA Lane Based protocol, about -22dBm;

for the public Title 21 protocol, about -22dBm; and

for the proprietary IAG protocol, about -10dBm.

23. The method of claim 15 including the step of storing in a memory accessible to the means for executing a protocol dependent identity respectively associated with each of the plurality of communications protocols and the second RF signal being based at least in part on the protocol dependant identity.

24. The method of claim 15 including the step of storing in a memory accessible to the means for executing a single unique universal identification code identifying the transponder independent of the plurality of communications protocols and the second RF signal being based at least in part on single unique universal identification code.

25. The method of claim 23 including the step of storing in a memory accessible to the means for executing a single unique universal identification code identifying the transponder independent of the plurality of communications protocols and the second RF signal being based at least in part on single unique universal identification code.